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## EDITORIAL



## REGULATIONS

For the first time in many a long day the Postmaster-General's Department has directed to all Commonwealth of Australia licensed Amateurs a notice concerning amendments to the "Handbook for Operators of Amateur Wireless Stations." Some previous amendments, which were never notified direct, were included in the 1954 edition of the Handbook.

Although the Department has been somewhat tardy in issuing notices of amendments to the "Handbook for Operators of Amateur Wireless Stations," in most cases the Australian Amateur has "heard" about the change as soon as it has been made public, but oft times gets the story wrong. The delay between the release of official changes and/or additions to Amateur Regulations by the W.I.A. and the official notification to individual Amateurs leaves much to be desired.

The fact that the W.I.A. negotiates with the Department for variations in existing regulations, or the inclusion of new ones affording more suitable operating conditions for the Australian Amateur, does not in itself constitute automatic advice to every Amateur in the Commonwealth since some are not members of the W.I.A. nor do they necessarily read the official journal—"Amateur Radio." By the same token the Department is not under any provision of law to notify each and every Amateur so long as some formal notification appears in the Government Gazette. This may also appear in local daily newspapers for the better dissemination to those concerned.

This is not a foolproof way of ensuring that every Amateur has been notified of the change. There are, perhaps, some who choose to dis-

regard notifications unless they are addressed to them personally from the Postmaster-General himself—that is of course if the change is one with which they disagree. A rumour of an agreeable change, however, is quickly passed by grapevine and acted on!

This position should never be permitted to arise! And yet the Department should not be expected to have to advise every single change to each Amateur immediately, any more than the Motor Transport Department should have to forward all licensed motorists a copy of changes in motoring regulations. The cost and time for so doing is not a fair burden to expect any State or Commonwealth Department to carry—and remember you pay the taxes to keep the Civil Service functioning.

What then can be done about it? The Government Gazette is not easily available to each and every Amateur—particularly those away out in rural areas. Notifications in the daily press are not written in a manner which conveys the legal information but are rather dramatised as a news item. The answer seems to be to officially transmit the information concurrently with its appearance in "Amateur Radio." The Federal station, VK3WIA, has been granted higher power for the purpose of official broadcasts to Amateurs of Australia and the Mandated Territories and it is the intention to seek the approval of the Postmaster-General for this system to be officially recognised as the voice of information. Transmissions conveying official information would be radiated in all Amateur bands at regular intervals over a reasonable period of time so that ALL Amateurs should have cause to hear and accept.

FEDERAL EXECUTIVE.

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# Building a Panoramic Adaptor

BY K. M. SAXON,\* VK7AI

ONE of the most fascinating electronic devices to have around the Amateur shack is the panoramic adaptor. By means of this piece of equipment it is possible to produce on a cathode ray tube screen a visual presentation of the strength, frequency and type of signal over a predetermined range of frequencies, centred on the signal to which the communications receiver is tuned.

Panoramic reception first came into use during the last war as an aid to monitoring the h.f. spectrum, where it reduced the number of operators required to cover a given frequency range, as any suspicious signal appearing, even momentarily, on the screen could be tuned to and investigated. Also, it proved invaluable at Air Force base stations, where slightly off frequency transmissions from aircraft could be quickly seen.

In the Amateur Station its uses are numerous. Band scanning and watching for clear channels in which to call CQ are facilitated. Transmissions can be checked for depth of modulation and bandwidth, and such troubles as splatter, key clicks and parasites are readily observed. With highly selective receivers it is extremely valuable when looking for c.w. or s.s.b. signals, as there is practically no possibility of tuning over a station when, momentarily, it is not transmitting. With aural reception by itself this can happen, even when a c.w. station is known to be near a certain frequency.

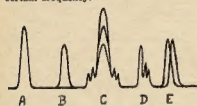


Fig. 1.—Presentation of Signals.

"A"—Unmodulated carrier. "B"—C.w. signal. "C"—Amplitude modulated signal. "D"—Single sideband suppressed carrier. "E"—Frequency shift keyed signal.

Often, too, it is possible to watch and identify the "v.f.o. swishers" who produce QRM by leaving their finals on when moving from one end of the band to the other.

In contest work it is almost indispensable, particularly with selective receivers. A known signal can be watched whilst searching for other signals, and the position of your own v.f.o. shows up instantly, thus netting is possible without even looking at the v.f.o. or receiver dials to see whether the v.f.o. has to be tuned higher or lower in frequency. The whereabouts of strong signals causing splatter can be seen and the signal which has just appeared several kilocycles away can be tuned to immediately and identified long before he has stopped calling CQ! Then,

\* C/o. Clifton Private Bag, Somerset, Tasmania.

too, its effect on non-technical visitors is most impressive. They'll not forget it, nor will the technical visitor, who has not seen one before.

A separate receiver could be used for panoramic reception, but it is more economical and convenient to use a panoramic adaptor which is simply connected to the plate of the first mixer in the station receiver. Thus the one tuning system suffices for both aural and visual reception, giving the added advantage that the signal to which the receiver is tuned, normally appears in the centre of the screen.

## PRINCIPLES OF THE PANADAPTOR

The essentials of the panadaptor are shown in the block diagram (Fig. 2). It consists of a superhet receiver having a broadband r.f. stage and a sharp i.f. stage, the tuning of the broadband r.f.

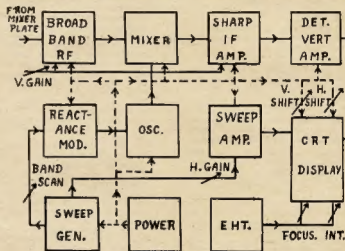


Fig. 2.

stage being centred on the first intermediate frequency of the communications receiver. The oscillator is varied over the required range by means of a reactance tube modulator, and the detector output is amplified and fed to the c.r.t. display unit.

The bandwidth which can be scanned is controllable, from the maximum practicable bandwidth of the r.f. stage to zero. In this latter state, the panadaptor works as if it were an ordinary double conversion receiver and the audio content will appear on the screen, or can be monitored at the plate of the vertical amplifier.

In an ordinary superhet receiver, of course, to cover a band of frequencies, the h.f. oscillator is varied and, as the h.f. tuned circuits are not particularly selective, it is possible to cover a hundred kilocycles or so by tuning the oscillator alone. In normal use, a receiver oscillator is fixed in frequency

at any one time, but in the panadaptor, the local oscillator is frequency modulated over the desired band. The band of frequencies thus swept by the panadaptor is selected by tuning the main receiver in the usual way.

To obtain a linear frequency deviation, the reactance tube is supplied with a voltage of linear sawtooth waveform. This varies the frequency from one end of the sweep range to the other, at a relatively slow constant rate, then it is quickly flicked back to start the cycle again. A repetition rate of at least 25 c.p.s. is required to prevent flicker on the screen and 50 c.p.s. is usually chosen, to be in synchronisation with the a.c. mains supply, and thus reduce hum effects.

The r.f. stage of the panadaptor is broadbanded to provide a reasonably flat response over the required range of frequencies, which is often about plus

or minus 50 to 100 Kc. Often, the stage is given a rising characteristic towards the edges of the band to compensate for the falling characteristic of the front end of the receiver. The higher the first i.f. of the receiver, the easier it is to obtain the desired bandwidth.

The input is connected through an isolating resistor to the plate of the first mixer of the receiver as all signals passed by the bandwidth of the receiver r.f. stage appear here. It is preferable for the receiver to have only one r.f. stage, as more would cause greater attenuation towards the edges of the desired pass-band, particularly on the lower frequency bands.

The i.f. stage of the panadaptor should be as selective as practicable to give good definition and separation between signals.

The second detector output is fed to the vertical deflection plates of the cathode ray tube and gives a pattern









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The oscillator coil, L1, can be a b.f.o. coil for 455 Kc., a b.c. oscillator coil for 910 Kc., or a home-made one for 1600 Kc. Its inductance should be kept as high as practicable, by screwing the iron slug nearly right in, as then it is easier to obtain the required frequency deviation. The oscillator tuning capacitor, C18, can be either variable, or a fixed mica in parallel with a trimmer. Its value must be calculated or determined experimentally to suit the coil. C19 is a panel-controlled trimmer for centring purposes and for correcting for any drift in the receiver or panadaptor circuits.

If the adaptor is to be used with a receiver having a first i.f. of 1600 Kc., whether the oscillator is above or below this frequency will depend upon whether any of the harmonics fall in an Amateur band. Moving the oscillator to the other side of the input frequency may move the harmonics out of harms way, if the shielding doesn't eliminate them. Remember also, that the oscillator frequency varies plus or minus 50 Kc. No trouble should be encountered when using 910 Kc. or lower intermediate frequencies.

The linearity of the reactance tube is adjusted by means of R31 in the cathode circuit of V6.

The i.f. amplifier is quite conventional. A 6AV6 (V4) is used for the diode detector and vertical amplifier. As this is a high- $\mu$  valve, no bias is necessary in this application, and the grid is direct-coupled to the diode circuit. The plate is connected directly to the c.r. tube deflection plate and its load resistor R42 is taken to the vertical shift control R37 which is normally adjusted to place the baseline nearly half an inch below the centre of the c.r. tube screen.

The sawtooth generator, V5, uses a 6SN7. One half squares the 50 cycle a.c. which is then differentiated by R19 and C15, the short positive pulses thus obtained trigger the second generator, which discharges the sawtooth capacitor C16. This capacitor charges exponentially through R22, the valve section being normally biased beyond cut-off. The values used for R22 and C16 give a sawtooth of adequate linearity and amplitude. Other types of sawtooth generator could be used, but this circuit is reliable and easy to get going.

The horizontal amplifier V7 is a 6AC7 triode connected. No cathode by-pass is normally used, the degeneration thus produced provides better linearity. No great amplification is called for, as the output from the sweep generator is quite high, the major requirement being that the stage can supply adequate output voltage to give full linear deflection of the trace.

For the c.r. tube (V9) a three inch type is recommended. Two inch types hardly provide sufficient resolution, whilst five inch types take up too much space besides requiring push-pull horizontal deflection amplifiers and a higher anode voltage supply, but they are otherwise excellent. If a tube with other than a 6.3v. heater is to be used, from a 6.3v. winding, a suitable dropping resistor, R51, will be needed.

Two receiver type transformers are used for the power supply. One, T6, utilises the full secondary voltage in a half wave circuit to provide the a.h.t. supply for the c.r. tube. This is one suggestion for obtaining the required volt-

tage but any other suitable transformer and rectifier could be used.

As a refinement, retrace blanking could be applied to the c.r. tube, but this is not essential.

### CONSTRUCTION

The panadaptor can be built on a 12" x 17" x 3" chassis with an 8 $\frac{1}{2}$ " x 18" panel. Normal receiver construction practices are used throughout so no particular difficulty should be encountered by any Amateur who builds his own equipment.

Layout is not critical. The c.r. tube can be mounted centrally on the panel near the top edge. The transformers can be placed to the left of the chassis, the sweep generator, horizontal and vertical amplifiers in the centre under the c.r. tube, with the i.f. stage next and the r.f. stage on the right, placing the converter and reactance tube between the r.f. and i.f. stages and the panel.

If used with a BC348 series receiver, i.f. transformers can be adapted for the r.f. stage by removing turns from 455 Kc. transformers as well as reducing the tuning capacitance to about half.

The whole converter, oscillator and reactance tube circuits should be well shielded, particularly when used with the higher intermediate frequencies, to prevent radiation of harmonics.

A magnetic shield is desirable for the c.r. tube. Mu metal is best, but a length of water pipe or two concentric shields made of light gauge sheet steel with about  $\frac{1}{4}$ " spacing between the two would no doubt be satisfactory. As the sweep is synchronised with the a.c. supply frequency, any deflection caused by stray fields will remain stationary.

The shift, focus and intensity controls can be located symmetrically around the tube. The two gain controls, the bandscan control and the centring trimmer are mounted in a line about 1 $\frac{1}{2}$ " from the bottom edge of the panel. The intensity and focus potentiometers should be mounted on insulated brackets and driven through insulated couplings. All exposed potentiometer terminals should be insulated with tape or tubing; your life expectancy is thereby increased!

Connection to the receiver is by means of a length of co-axial cable. A co-ax socket can be mounted conveniently on the receiver, or if it is not desired to cut a hole in the receiver, the socket could be mounted on a bracket in a suitable place close to the mixer as possible. R1 being connected straight to the plate pin of the mixer valve.

With a BC348 receiver, the co-ax socket can be placed near the top right hand corner of the dial where a resistor in the dial light circuit was mounted behind the panel. From there R1 and C1 are easily connected to the plate of the mixer.

A scale made from thin perspex and calibrated in kilocycles either side of centre can be placed over the screen. This also would serve to protect the screen from breakage.

### ADJUSTMENT

After thoroughly checking the wiring, apply the h.t. to the c.r. tube and focus the spot at low intensity.

Now apply the h.t. to the receiver section and centre the spot by means of the shift controls. Adjust the hori-

zontal gain to give a trace of suitable length and align the c.r. tube so that the trace is actually horizontal.

Next, line up the i.f. amplifier with a signal generator, using the c.r. tube as the indicator. (The trace should be deflected by any signal.) Make sure the vertical deflection is upwards. This may mean rotating the tube 180 degrees if one of the vertical deflection plates is connected to the second anode internally. The horizontal deflection should sweep from left to right, but in some tubes this may not be possible whilst still maintaining upwards vertical deflection. Where all plates are brought out to separate pins this difficulty will not arise.

Adjust R31 to provide about two volts positive at the cathode of the reactance tube, then set the oscillator to the correct centre frequency, with the sweep-scan control R29 turned right off. This frequency will be 430 Kc. for 455 Kc. input; 1085 Kc. for receivers of the BC348 series, or about 1600 Kc. plus or minus 175 Kc. if this should be the i.f. used in the receiver. This frequency can be checked by listening either to the fundamental or to a harmonic on a general coverage receiver.

Now check the reactance tube for correct frequency sweep and linearity. Turn R29 up about half way or so, and a raspy buzz should be heard in a receiver tuned to the oscillator frequency. Check to see whether this extends equally both sides of the centre frequency. If it does not, adjust R31. If linearity is poorer, the adjustment has obviously been in the wrong direction. Any adjustment of R31 will vary the oscillator frequency, which must be compensated for by C18.

Next, set sweep padder, R28, to give maximum desired frequency sweep with bandscan control, R29, at maximum.

Final adjustment of the i.f. amplifier can now be done by connecting the signal generator to the grid of V2, setting it to the receiver i.f. and turning the bandscan control to mid-position. The deflection which should appear on the screen represents the response curve of the i.f. amplifier. The i.f. transformers can be adjusted for maximum height, smoothest and narrowest shape of the curve.

Next thing is to align the broadband r.f. stage. The results obtained here depend largely on the i.f. transformers used. One method is to align all windings to the centre frequency, relying upon the overcoupling capacitors to produce the broadbanding. The recommended way is to tune the primaries slightly below the maximum frequency to be passed and the secondaries slightly above the lowest frequency to be passed. One adjustment will affect the other, which must then be re-checked.

If the variation in the tuning range of the transformers cannot be obtained by adjusting the slugs alone, the tuning capacitors will need to be decreased for the primaries and increased for the secondaries. If a portion of the new capacitance is made up by means of trimmers placed in an easily accessible position, alignment is considerably facilitated.

A 10 Kc. multivibrator is useful for these adjustments as it produces signals of equal strength every 10 Kc. across





Trail of wreckage left by the 1955 Maitland flood.

## An Invisible Lifeline . . .

The worst flood in the history of the white man in Australia swept down the Hunter River Valley in early '55, causing death, privation and misery to thousands of people.

The death toll and property loss would have been even heavier but for the part radio — including "hams" in all parts of the State — played in rescue and relief work.

This "invisible lifeline" was operated from central emergency stations with equipment no bigger than the average radio cabinet. Technicians used 10-watt and

3-watt frequency modulation equipment, making contacts up to 40 miles away.

As the water receded, radio men gave valuable assistance, before tele-communications were restored, by relaying messages and directions throughout the area. Scientific developments are constantly helping radio men everywhere to improve their techniques and equipment.

SHELL research, for instance, has produced from petroleum special resins used for wiring, insulation and condenser sealers in every type of radio set.





the band, but by connecting the adaptor to the receiver, any signal of constant strength, such as the v.f.o., can be used, by tuning it across the band, by means of the receiver dial and adjusting the transformers of the broadband stage to maintain as nearly constant amplitude as possible.

#### INTERPRETATION OF SIGNALS

The interpretation of the signals is quite easy. An unmodulated carrier produces a deflection of constant amplitude, as shown in Fig. 1a. A c.w. signal produces an intermittent deflection as in Fig. 1b. A modulated carrier appears as a deflection of varying height, with the sidebands appearing as ragged edges to the curve as in Fig. 1c. With reduced bandscan the sidebands show up clearly.

Single sideband suppressed carrier signals are seen as very intermittent and irregular deflections of varying height as in Fig. 1d.

An f.m. signal appears as many deflections spreading over a variable bandwidth. When unmodulated, a single carrier appears, as with other unmodulated signals.

Frequency shift keying is easily recognised, as two carrier positions, slightly separated, are seen (Fig. 1e). Often, fading can be seen to be greater on one frequency than the other, even though they are only a few hundred cycles apart.

Noise from leaky power insulators, etc., is mainly in synchronisation with the sweep and therefore remains stationary on the screen.

One interesting feature is that an image signal will be seen to move in the opposite direction across the screen from that of normal signals and is easily identified.

Loran signals puzzle many listeners. These produce a peculiar and distinctive buzz in the receiver. On the panadaptor they can be seen as pips which drift across the screen at varying speeds, when the bandscan control is set at zero.

The amplitude of a strong signal will decrease towards the centre of the screen due to the a.v.c. action on the r.f. stage of the receiver. This will also cause the amplitude of all other signals presented to decrease.

Once having used a panadaptor, there is little chance that anyone would ever wish to be without one again.

#### TECHNICIAN WANTED

Relieving Technician, holder of 1st Class C.O.C.P., required by Church of England Flying Medical Services, for all or part of period from last week July to end October. Relieve Radio Officer in charge transceiver network for holidays. Good conditions, plenty fishing.

Further details: G. Cameron, Radio Officer, Flying Medical Service, Ceduna, S.A.

## AMATEURS PRESENT AT OPENING OF JOHN FLYNN MEMORIAL CHURCH

News has come to hand of some interesting mobile operations in the Northern Territory. Maurice Anderson (VK3AMA), with a couple of companions travelled to Alice Springs, via New South Wales and Western Queensland, to take part in the official opening ceremony of the John Flynn Memorial Church at Alice Springs on 5th May. Maurice's 40 metre mobile rig kept Melbourne Amateurs informed of his progress as their Landrover fought its way across the rugged "Back o' Bourke" country where Maurice renewed acquaintances made many years ago when he was one of the first radio operators of the Inland Flying Doctor Service.

While in the Northern Territory, Maurice maintained contact also with the Inland Mission under a special P.M.G. licence permit granted for the purpose. In Alice Springs he was heard from the station of VK3TL on the 7 and 14 Mc. bands.

It is interesting to recall that Australian Amateurs played a major role assisting the late Rev. John Flynn in the formation of the radio communications service for the Inland Mission. South Australian Amateur Alf Traeger, who held the calls VK5AX and VK8XT, developed the first pedal radios for the outback service in 1928. Early tests were made from VK8XT with the late Harry Kauper (then VK5BG), and Amateurs throughout Australia also co-operated.

In appearance the machine was similar to a typewriter keyboard, with a shortwave receiver and transmitter and sent out the appropriate morse signals whenever a letter key was depressed, the power being supplied by a small

pedal generator. It enabled families living in isolation, possessing no radio knowledge and with no source of electric power available, to keep in touch with civilisation or to request medical aid when necessary. Over the years the design of the sets has been improved and Alf Traeger still supplies the Mission with communication equipment.

Australia will always remember Flynn and his associates for their humane and enterprising hard work which has provided the outback people with a service unique in the world.

#### HINTS AND KINKS

##### POLYTHENE SPREADERS

It was suggested in "A.R." that the polythene insulation material from coaxial cable will make effective feeder spreaders. It is better not to drill holes for binding wires, but to twist the wire tightly around the polythene near the ends. Also, after a few months' exposure to weather conditions, such feeder spreaders will show signs of "crazing" with probable breakage. This can be prevented by painting the spreaders with a sealer of clear plastic cement. —VK2NC.

##### FILLING PANEL HOLES

Holes up to half an inch diameter can be easily filled in by using the plastic metal compound known as "LOY." This material is something like the amalgam with which your dentist fills tooth cavities, and it sets hard in any metal panel in a short space of time. When set, it can be filed, drilled, emery-papered down and worked like any soft metal. —VK2NO.

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**SEND** for description leaflets on the British Gramplan Mullard Amplifier.

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- Aluminium diaphragm mechanically protected and frequency controlled by "Zephyrfl" filter.
- Australian made throughout.
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Rochelle salt crystal microphones are perhaps the most widely used for all types of service where quality speech and music reproduction at high output levels is a requirement. They are dependable in performance and when fitted with the appropriate "Zephyrfl" filter, their frequency response may be adjusted to suit any application or requirement.

This crystal microphone requires to be terminated with a high value parallel load of the order of 1 to 5 megohms for best results.

The mass of the moving parts is small, hence the sensitivity is high and a high efficiency is achieved.

Light gauge solder lugs are provided so that excessive heat in soldering will not be transmitted to the crystal element.

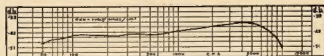
When mounted in a microphone cage, it is recommended that the insert be suspended in rubber, to eliminate shock and vibration.

One of the connecting lugs is directly connected to the case and care should be taken to solder the metal shield of the microphone cable to this solder lug, keeping the unscreened portion of the centre conductor as short as possible to eliminate hum pick-up.

All crystal elements are mounted on high grade suspension pillars, being fixed thereto with a good quality cement, thus ensuring stability and long life.

Case 1½" diameter (rear), 3" thickness, 1-13/16" overall diameter (front) with filter fitted.

Frequency Response = 60-6,500 c.p.s.  
Output Level = -45 db (0 db = 1 volt/dyne/cm²)  
Impedance = Model 1XA Grid 1 — 5 megohms.



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# TWO METRES, BUT HOW!

BY E. C. DAW,\* VK5EF

AUGUST, 1955, issue of "A.R." contained an article by VK2GZ which he styled the complete explanation of 2 metres. Some of you may have considered that article humorous for the most part, but you can be assured it was all deadly serious and represented but a fraction of the weird and wonderful things that can happen to you when embarking on v.h.f., and 2 metres in particular.

The fact that some of the things he referred to could happen to someone besides me was very heartening, for at that time this QTH was undergoing the pangs of introduction, for the first time, in a serious way, to 2 metres by that rascal, Les VK5AX.

Oh yes, he lives here, too, and being radio's greatest urger, finally had me eating and sleeping v.h.f. Why? Because he had made a new converter and wanted to try it out on a strong local signal! Now he *knocks* things up in very quick time, they always work first up, and seeing how simple it all looked thought there was nothing much to it, so had a go. Innocent me.

"QST" was quite a help, for by referring to many articles therein, it meant there was about 150 different ways of getting 100 watts input on 2 metres and then to add to the confusion, no two chips on the air appeared to agree as to the best tubes or even antenna to do the trick. Finally, we settled for 12AT7 crystal oscillator, 12AT7 doubler, 2E28 driver, and p.p. 6148s final.

Finding the band came next; not having a Sherlock Holmes outfit, resolved itself into simple arithmetic, very simple, for having decided to get about half way in the active megacycle considered a rock 8.033 Mc. would do, so 18 times that gives 144.594—simple don't you think? Of course, that doesn't explain why the frequency finished up at 144.575, and that whilst getting the rig bug-proof a fairly hefty carrier appeared at 96.396 Mc. and about 30 others anywhere between 140 and 150 Mc.

Neutralising—how I hate that word—is just no trouble at all—according to "QST," "CQ," "A.R.," "E. & H.," "Pix" or "Sporting World"—for with a beam tetrode it's just a matter of feeding a voltage back to the plate from its grid, 180 degrees out of phase. Dead easy. Or if you don't like it that way, just resonate the screen circuit to some (always unnamed) frequency. We tried both, first of all the screen method which was lovely for it prompted the self oscillation of the final to be absolutely uncontrollable and provided anything up to 2 amps. in the antenna at any frequency you liked to nominate.

Next job was to try a Ja-829B style, which worked better, much better, for then not only was the final neutralised, but completely neutral, the tube plates lost that rosy blue hue that they en-

joyed to this point, the grid drive disappeared altogether, and all trace of r.f. was removed—a great success.

Some heavy thinking was now called for and whilst poking around the rig trying this and that, found it would remain fairly stable if one hand was held near the top left hand corner of the exciter chassis and one foot on the power supply, and one hand held close to the final plate line. Quite an exercise really, but considered too difficult to maintain whilst carrying on a QSO, so obviously something better had to be done.

At this point that character VK5AX came into the picture for he suggested the dummy antenna be abandoned and the yagi put on to thus let him hear what kind of a signal it would put out. This was done and a c.w. attempt made. Of course he was able to follow me (at reduced speed) on any of the 30 odd frequencies mentioned before.

Not to be discouraged by that, he said "apply some modulation." That was the start of a new set of problems, mainly resolved after feed-back was cured; but then I'm a long way ahead of the story.



"At this stage 2 metres was nearly abandoned . . ."

When the modulator was connected, the first effect was the beautiful purple glow the 807s took up and every time I puffed, whispered, shouted, whistled, or just plain talked into the little pink ear of the mike everything in the shack spoke back at me with either sparks, or extra tonal shades from a deep bark to a high pitched scream or any number of combinations of them.

To cure that, about a bucket and a half of by-pass condensers and r.f. chokes were used, every lead that had the temerity to have an exposed end in a handy position had a few poofits put across it and earthed, the mike lead was butchered until it was no longer a quarter wave of any of the suspected as well as the main frequency, all screw drivers with long shanks were removed

from sight or earthed, and even the tube chair had its frame under suspect at one stage.

Then we were ready for the big test, and high-pressed! 100 watts input, 100 per cent. (ahem!) modulation, mostly upwards we think, a bucket full of burned-out pea lamps that could not take it, and a signal report of readability 5, strength 1 a mile way, the excitement is great!

More tuning, more grid dip oscillator dipping, more shielding, and oh yes, more neutralising—then bingo, our 35 watt lamp used as a dummy antenna went up in smoke and joined the pea lamp heap. Were we in business yet? No, it was back as a perfect self oscillator, but this time only about 27 different frequencies—a slight improvement.

At this stage 2 metres was nearly abandoned for the peaceful pursuit of big game hunting or the like, but it was not to be, so once again out came the soldering iron and some more tidying up was done, a few leads were shortened here and there, and just for luck took the crystal out of its socket from inside the case and mounted it outside on the back plate where it could be easily removed and replaced by a drive from an n.b.f.m. exciter. You see we were getting very scientific at this stage and thought the good book may have something when it stated grid drive was not an essential for f.m.

The rig was again fixed up, and as usual had 43 different frequencies, so went out to get the axe with the idea of hammering some sense into it, left the thing turned on whilst out of the shack and when returning a few moments later, found all well with one frequency only, 100 watts input, very nice upwards modulation, and monitoring well, also indicating pretty fair r.f. output.

Why? Couldn't even guess at this point, but found that every time it was given enough warm-up time, it went like a bird. So at least we could go on the air again, and on cross-town checks and later to VK5MT, all was reported well.

Now says Les, let's try duplex. We then had a further set of problems. The antenna in use is but a temporary affair (borrowed), four element yagi about 10 feet off the ground and fed with 300 ohm ribbon. This latter caused quite a lot of strife in that the amount of r.f. in the shack was too heavy and blanketed the receiver, so a change to co-ax was made, ending in a balun at the driven element—much improvement noted.

Oh yes, duplex, now after a couple of weeks of trial and much error, we finally made it, VK5AX having no trouble at his end on 144.42 Mc. He could hear me quite well with his rig on, but me? Yes, as usual, r.f. feed-back made more research necessary for his signal with my transmitter off was 9 plus, but when the transmitter was on,

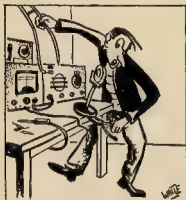
\*East Terrace, Gawler, S.A.



he sounded like Donald Duck (or s.s.s.b.) and a rockbreaker fighting it out.

After a lot of tries, it was found that if I earthed one side of the feedline, held the other in my hand and laid a pair of pliers on the lead to the converter about 0.4987357 wavelength from the input terminals, he came out of the mud quite well. I told him so, and then moved across the shack to get some cigarettes and at the first movement from the operating table back came all the trouble, so had to sit still in one position as a screen or something.

At this point the XYL comes into it, for seeing the worried look on the countenance, the effect of sleeplessness and reduced appetite, she really took pity and displayed an interest in this thing that could so influence an otherwise seemingly normal bloke. The rig was on, squeaking and squawking away and she put her finger against the crystal and said, "What's this little black thing?"



"I earthed one side of the feedline, held the other . . . and laid a pair of pliers . . ."

The bottom of the earth fell out, not quite, spurious oscillations stopped, the receiver went quiet. Les' voice jumped at us and we had to dive to the volume control to quieten him down and as soon as her finger came away from the crystal, hell broke loose again. Tried my finger, it worked too, so rushed a shield around it (the crystal, not the finger), and presto, all is well. No spurious, no warming up periods needed, one carrier, stable signal, upwards modulation, 100 watts input, 8 mills grid drive, and all we want now is someone to answer when we call "CQ 2".

If you have read this far, you will have learned that instead of the rig being balanced on one corner and supported by torches, multimeters, etc., etc., it is now screwed in the rack, and anything within cooee of it is of a length breadth or depth less or greater than quarter wave on 2 metres. There is more 0.001 uF. by-pass condensers in the whole outfit than Mr. Ducon ever thought he would sell one customer, and there is an air of peace and quietness about the place that usually follows the conclusion of a successful experiment.

Did I say peace and quiet? For a while anyway, for now we start on 5 metres and knowing my form, it will all happen again. Might even tell you about it some day.

## AMATEUR CALL SIGNS

FOR MONTH OF MARCH, 1956

### NEW CALL SIGNS

- VK— New South Wales**  
 2ACO—C. H. Orr, 381 Princes Highway, Rockdale.  
 2AOZ—H. Ferris, 11 Floss St., Hurstville Park.  
 2ZAE—A. K. Greenhough, 10 Skeelchey Pde., New Lambton.  
 2ZAI—K. L. King, "Fontainebleau," Honour Ave., Lawson.  
**Victoria**  
 3ABT—J. R. Barber, Carr's Lane, Anakie.  
 3AHX—J. W. R. Holman, 120 Normanby Rd., East Kew.  
 3AWT—C. J. Waterlander, William St., Ouyen.  
 3ZDB—S. R. Brooks, 23 Hlex St., Tollenham.  
 3ZDC—D. Calwell, 17 Panoramic Rd., North Balwyn.  
**Queensland**  
 4HO—M. S. Robinson, "Roscoe," 678 Logan Road, Greenslopes.  
 4HX—H. C. Harman, R.A.F. Station, Archerfield.  
 4KC—W. Brock, C/o Bank of N.S.W., Maroocha.  
 4NV—L. L. Neaverson, 17 Lamrock St., Holland Park.  
**South Australia**  
 5ZAI—A. D. Nutt, 37 Liberty Gr., Woodville Gardens.  
**Territories**  
 1RW—R. C. Widows, H.M.W.T. Station, Direction Island, Cocos Keeling Islands, Indian Ocean.

### HAVE YOU RETURNED YOUR QUESTIONNAIRE YET?

#### CHANGES OF ADDRESS

- VK— New South Wales**  
 2CV—R. J. Parrie, "Owls Castle," Epping Rd., North Ryde.  
 2EN—E. C. Hylme, 24 Gnarbo Ave., Carrs Park.  
 3JA—J. A. J. Mitchell, 376 Centenary St., Albany.  
 3JI—J. P. Marshall, 66 Wycombe Rd., Neutral Bay.  
 3QV—P. H. Sara, 23 Rose St., Punchbowl.  
 3UX—F. M. Goyen, 2 Gilderthorpe Ave., Randwick.  
 3YJ—C. W. Johnson, Station 53 King St., Newcastle.  
 3ADV—C. Hicks, Rayner Road, White Beach.  
 2ALG—J. A. Ackerman, "Hidewild," 17 Bourke Street, North Parramatta.  
 2AVO—J. T. Crichton, 18 Rosedale Square, Lismore.  
**Victoria**  
 3EH—C. R. Whitelaw, 3 Elsie St., Boronia.  
 3CU—C. J. Jackson, 33 Marcella St., E Oakleigh.  
 3UH—L. J. Richards, Lot 3, Maria Ave., Nunawading.  
 3SD—R. V. Wilson, 8 Dixon Gr., Blackburn.  
 3KA—D. W. Hope, 4 Elm St., Blackburn.  
 3ZB—J. B. Soper, 353 Waverley Rd., East Malvern.  
 3ACJ—V. P. O'Brien, C/o Power and Bennett, Solicitors, Pymble St., Harbourside.  
 3AVE—J. P. Kirk, Lot 81, Volga St., Pascoe Vale.  
**Queensland**  
 4DO—H. L. Hobler, Flat 3, "Riverview," 134 Victoria Pde., Rockhampton.  
 4EM—E. B. Mera, Commonwealth Bank, Charleville.  
 4FB—J. S. Beech, 208 Bennetts Rd., Norman Park.  
 4GP—D. A. Crowley, 145 Nudgee Rd., Doomben.  
 4RZ—J. M. Atkinson, Railway St., Gatton.  
 4WD—W. G. Dodd, 4 Brunel St., Dengun, N.T.  
 4WJ—J. H. Farrell, Station C/o Power House Quilpie; Postal: P.O. Box 80, Quilpie.  
 4YA—W. A. Young, 19 Crish St., Ipswich.

- South Australia**  
 5IQ—R. F. Trehanne, 19 Stafford St., Cleveview.  
 5LD—L. Deane, 21 Davenport Ter., Hazelwood Park.  
 5TW—T. Welling, 11 Jardine St., Mt. Gambier.  
**Western Australia**  
 5BR—B. R. Field, 19 Charles St., Sth. Perth.  
 6EE—R. R. Elkin, 63 Woolwich St., Leederville.  
 6EW—E. J. Wilson, 162 Ninth Ave., Inglewood.  
**Tasmania**  
 7BR—H. J. Bracken, Bronte Park.  
 7P3—F. J. Evans, 21 Milton Cres., W. Moama.  
**Territories**  
 9TC—T. M. Cole, R.T.C., Kariang, New Ireland.

### CANCELLED CALL SIGNS

- VK— New South Wales**  
 2GH—H. C. Harman, New VK4HX.  
 2IT—M. S. Robinson, New VK4HO.  
 2VX—V. E. Stanley.  
 3AGY—A. Kitchen.  
 2ZBN—A. D. Nutt, New VK3ZAI.  
**Victoria**  
 3ZCO—C. J. Waterlander, New VK3AWT.  
**South Australia**  
 5BS—B. S. Clarke.  
**Western Australia**  
 6HM—C. W. R. Holman, New VK3AHX.  
**Territories**  
 9KC—W. Brock, New VK4KC.  
 12M—B. L. Shaw.

#### ERRATUM

Mr. K. J. Love's call sign appeared in the January issue of "A.R." as VK3AWV. This should have been VK3AWU.

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## Amateur Radio, June, 1956







# SHORT WAVE LISTENERS' SECTION\*

Short wave listeners pay heed! The bands are becoming better, and now winter is upon us, it's much nicer to sit inside in the warmth with your rx. You might say there's nothing to listen to, but just after turning on my rx recently I heard five stations, namely VP2, VQ5, KV4, II and H130, in almost as many minutes. So get those rx's going and see just what you can do.

## HAPPENINGS OF THE MONTH

Well boys (and girls, if any), I'm happy. I'm almost jubilant. In response to my previous appeals, I have received correspondence from VK4, VK3 and from my other two readers—local VKs. Nothing yet though from VK1, 6, or 8. What happens in those other States? Don't they have any rx's? If you do, what about writing and letting us know all about it?

Here in VK3 we have been having a very interesting time. At the April meeting of our Group, Hans SARH (ex-DLZEC) presented us with a talk on "Amateur Radio Overseas." This was a very interesting talk with Hans covering a very wide scope of radio activities all of great interest to us here. We thank you very much for coming along and assisting us in this way, Hans.

On Sunday, 29th April, the Group visited the police headquarters radio station, VKC, better known as D34. Seventeen persons participated in this visit, including several Amateurs who we were very pleased to have with us. Senior Parkinson, who conducted the tour, first showed us the control room which included two very interesting console units, the headquarters switchboard, and many large maps and diagrams. The flashing lights on these equipment were very spectacular. The operator on duty obligingly called up the station at Sale to give us a demonstration of the workings of their country network. Several calls were made to and heard from the mobile units working in the suburbs. The view from the roof was next seen, then the transmitter room. A look over the police garage and the old Melbourne goal concluded our visit, which everyone agreed

was very worthwhile. Our thanks go to Sgt. Meehan, Senior Parkinson and members of the Police Wireless Branch for their efforts in this regard.

As previously mentioned in these notes the VK4 Division has now decided to cease hiding its light under a bushel. E. Bryant, whose first name I'm not sure of, has forwarded some quite interesting information. A Group has been formed in Queensland but their membership is not very great. So rally round you VK4 boys and support this Group. As to E. R. J. Bryant, 50 Marmion Parade, Taranga, S.W.S., Brisbane. Our correspondent tells us that he is using an AET and two home-built rx's with dipole antennae cut for 14 Mc. His antennae were attached to a mast 80 ft. high, but in doing some maintenance work, he had trouble with the rope bays and now his antennae go only to a 56 ft. pole. The antennae are fed with 75 ohm twin flex through an antenna tuner. A 150 ft. doublet is used on bands other than 14 Mc. Most of the chaps in the VK4 Group are evidently using household d.w. sets with a length of wire attached to the nearest tree. Most of them are still going to school and therefore cannot afford to buy other gear. We hope to hear more of the VK4 Group in the near future. Don't forget to write and let us know all about your activities.

Len Cragen, writing on behalf of the VK3 Group, tells us that Mac Millard returned safely home. Their meeting for the month of March was held at the home of Miss Macmillan, a total of ten members attending. Final arrangements for a VK-ZL Contest were made at this meeting. Unfortunately information regarding this contest, which was to be held during the month of April, was not received in time for publication in "Amateur Radio." Still, we hope to hear the results of this contest very soon. Len also forwarded reports on stations heard by a.w.j.'s in VK3. Thanks for your letter Len and keep sending information along to us.

Alan Holmes, from Wangaratta, representing the country VKs, writes that he is using a centre fed antenna, 33 ft. long and 35 ft. high. His rx is an American RCA AR88D, 14 tube

job, with a one-tube preselector ahead of it. Alan says it works really fine. He previously used an Edgettone "640" and an AR8. Hope to hear some more from you too Alan.

A card has been received from an a.w.l. in the United States, namely, H. F. Southwick, 316 Bank Street, Fall River, Mass. U.S.A. He is using a National 5W4 rx and heard the following VK stations on 40 m.c.w. during March, between 5 and 8 a.m. E.S.T. there: 4P3, 2M5, 3EX(?) 5KZ, 3AHK, 8OH, 4JF, 3FC, 3APN, 3AT(?) 3EX, 7RY, 3XB and 4BM. He states that other VKs were heard but were too weak to copy, also that there has been lots of QRN during the month.

Jack Keenan, who holds the listener's number ISWL9885, has written stating that he's been in Australia for five years and didn't know until recently that we had an a.w.l. Group. Come along to our meetings Jack, we'd be very pleased to see you. Our Group meets at the W.I.A. Rooms, 191 Queen St., Melbourne, at 8 p.m. on the last Tuesday of each month. Any other interested persons are cordially invited to come along.

## COMING EVENTS

Details of our programme arranged for the next five months are given on page 17 of "A.R." for May, 1956. We are also making arrangements for a visit to the City West Telephone Exchange and to one of the city newspaper offices. Come along to our meetings and find out all about our activities. Also, if you have any suggestions for us, be you an Amateur or S.W.L., don't fail to let us know.

## AMATEUR BAND HEADINGS

Owing to lack of space, no calls heard appear this month. In future, in the interests of brevity (good word that!) I have decided to use prefixes of stations only. A very good list of call signs can always be found in the DK Activity column written by Hans 3AHH. Some of you may read his page by chance now and again. Anyway, I would like your comments on this idea of prefixes only, but if you don't like it, I'll soon be changing back to the other method.

Well chaps, I'm afraid my space is running out and the editor will be after me. Hope to hear from lots and lots of you soon, cheers for now and all the best to you in your listening.

\* Compiled by Ian J. Hunt, WIA-L2007, 101 Robert Street, Northcote, Vic.

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# BRIGHT STAR RADIO

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# FIFTY-SEVEN MEGACYCLES AND ABOVE

## NEW SOUTH WALES

The big event for the month was the field day held on Saturday and Sunday, 14th and 15th April, in conjunction with the Bushwalkers' Association. It was a Search and Rescue exercise and was held in the Blue Mountains area. Eighteen members of the Group and thirteen Bushwalkers took part in the two-day event. Most of the "hubs" rendezvoused at the base of the Mt. Kurrung Heights. After breakfast and a briefing, the morning and lunch had been disposed of, four search parties, consisting of one v.h.f. member with a walkie-talkie and several bushwalkers, proceeded to carry out the search. At the same time several mobile stations scattered around to different points of the landscape to act as links between the walking parties and the base station.

As the daylight faded out the parties made camp for the night, some not quite so soon as others—the terrain was not overabundant with ideal camping areas. After all, it was the Blue Mountains area. Perhaps this explains why all the parties were up, breakfasted and ready to proceed by 1.30 a.m. on Sunday morning! The weather was dry and sunny, but the breeze was cool and blowy. During the night there was some rain, but Sunday morning saw a worsening of the weather situation. Cold rain and clouds were all that was to be seen.

From the top of Kurrung you're right, that's where your scribe was. It was quite an impressive although hardly cheerful sight to see the walking parties, some of them, looking out ridge after ridge. By mid-morning the weather was so bad that it was decided to recall all parties. This was a relief, as the weather was really proving its worth. The walking parties were directed to proceed along specified routes to hit the roads at known points. The search parties were then sent from base, were directed to these spots and everybody was returned to base in a very short time. Later in the day, the search parties were directed to return to Sydney a much more pleasurable affair.

Despite the weather the event was judged to be successful. The bushwalkers were very pleased with the way that radio communication expedited their control of the search and that the weather was very much to the success of the communications. One of the outstanding things in the communications set-up was the fine use of walkie-talkies. At no time was any link out of action due to inability to make contact and during practically the whole of the search parties in direct communication with the walking parties. We think that in future exercises of this nature the mobile cars as relay stations will prove unnecessary.

Talking of future operations, we heard ZAPQ saying that next time he would lend someone else his walkie-talkie; he took a dim view of taking his own along under a weathered bush. He took a dim view of the bush roads, he took a couple of hours to wash them off the car when he got home.

The following morning were buzzing around the area during all or some of the week-end. ZHL, SVL ZAPQ, ZEAR, ZANF, ZOA, ZEAV, ZAZQ, ZATW, ZAPM were all active. ZEAR, ZATW, ZAE, Gr Griffiths, Darrell Price and Wai Jones.

On Wednesday, 22nd May we held a much less strenuous event—a night hidden tx hunt. Roy ROY, accompanied by Bill ZCAT, was in the lead. The tx was hidden in the back of Killara. Five cars faced the starting line at Ryde—ZAPWZ, two mobile, ZHL with 3NP as his navigator, ZAZQ, ZATW and ZAPM were three cars of good advice and ZOA with ZAPQ swinging the beam. Promptly at 8 p.m. Roy's signal came on the air and we were off. We cannot tell you the details of what went on during the trip to the location, but we can tell you how the hounds arrived. We were very much surprised to find that the "hounds" they call us now! But we are not saying a word about all the wrong cars we investigated in the bush along the starting line. We will blame it on the weather. If the things we found. However, we eventually found the tx after breaking two springs, four shock absorbers and a broken wheel. Then we were broken down. We examined them, but we still don't know why not.

At 8.20 p.m., when the transmission was supposed to cease, nobody was heard arrived, so the tx was allowed to carry on. A few minutes later ZAPM the other half of the Purrumite was confirmed to be followed by ZAPWZ and ZATW. However, no sign of ZHL/ZANP, so we started on the hot dogs and tea. At ten o'clock still no Horrie, so the tx was turned

off, and the tx turned up. There was Horrie, scribe, blind. However, we managed to talk him down and he arrived before the tx was heard had disappeared.

On 30th April, ZADR challenged ZHU by working ZJAS on 144 Mc and brought the spot level by working another one the next day. Isn't 50 going to close this time? Doug ZASA is safely back from his 42nd day out now. We leave the VKS scribe to report on his doings down there, but we can assure them that Doug is not worn out. He has since put up a 5/5 and now climbing it against his 13 of before. We look forward to some 144 Mc activity in the Griffith area before too much water has flowed under the bridge. Doug is going down there shortly to take some gear and show them how to get going on "two." Two more new stations have popped up on 144: ZEBB and ZER. Now that Eric ZATM has got his *swar pump* we only need a few more and 144 Mc will be sounding like 14 Mc!

The April meeting of the Group was held at the Petcham Arch in Callaghan on Friday 8th, with an attendance of 35 ZANF, ZAPQ, SVL and ZALU gave us the low-down on walkie-talkies. Mike ZCAT, who was away from the same place. This was our annual meeting at which we elected our officers for 1956-57 in a most democratic manner. The following officers were elected: President, John ZCAT; Perce ZAPQ, Vice-Chairman, John ZEAV; Sec, Bob ZAOA (you see what I mean about "a most democratic" Committee). General Secretary, Eric ZATM, John ZATO. After the elections, the Chairman read his annual report. Ray made it plain that v.h.f. boys play a significant part in the Institute's activities.

During the evening we were given a lecture on "V.M.F. Propagation" by Prof. Yardley Berra, ZJAWI. Yardley gave us an insight into the ways in which the signal gets out to distant places. During his lecture he gave it as his opinion that the Sydney-Auckland path was ideal for transmitting. After this we were looking to Norm ZALJ entering the DX lists. Inferentially, Yardley also gave us a good case for a power increase to one kilowatt at least on the v.h.f. band. He also mentioned the "water" effect. At the end of his lecture, Yardley gave us a few insights on v.h.f. propagation in New York from his own experience that the average W is using much the same gear as we do—20A.

## HAVE YOU RETURNED YOUR QUESTIONNAIRE YET?

### VICTORIA

Although the weather wasn't the best at the last fox hunt, it certainly didn't deter the hounds even though it gave them an added handicap in trying to find the fox. Frequent showers played tricks with the receiving aeriola, nevertheless all hounds made several catches. During this hunt, the fox ZLN found a very excellent hiding place. He was managed to remain for quite a while without being discovered. In fact it was such an unusual hiding place that we had to look for him again on another hunt and feels as sure that he will never be discovered in it that he has been hiding in it for some time. We have him there instead of the usual one point. After a four round the suburbs in which the hounds found themselves in some very queer places. The hounds eventually found him at the home of Ray ZKD in Emerton where during supper the gang was entertained with music on Ray's hi-fi equipment. We were all very much surprised that Ray was Ray ZKD as navigator. Henry thanks Ray and his mother for making their home available to us to finish off a pleasant evening.

The City-Country Get-together of the V.h.f. Group was again a great success. The success was due to the fact that we had difficulty in finding seats for everyone. There was a particularly large representation from the Ballarat district. In fact, we had more than made the trip including ZEBB, ZSL, ZAMII, ZARI, ZEBB, ZCAT, ZPO, ZVJ, ZGM, ZVA and ZDS. The Geography Year was also a success. A recording made by "Onesco" on the event was played and a number of 6 mhz stations promised their support. A further 6 mhz stations were contacted. The recording will be running from 1/1/57 to 31/12/58, are requested to send their names to ZLN. In the main this will consist of observations of signals

on 50 Mc, whose great circle path extends southwards and which could be affected by auroral phenomena.

V.h.f. records were also discussed and the best known records, which will become the Victorian State records were 288 Mc by ZLN on Mt. Buninyong to ZEBK-ZAAP on Mt. Dandenong, a distance of 80 miles 144 Mc—ZBW at Portarlington to ZWH at Forbes, a distance of 403 miles.

The winner of the third V.h.f. Field Day was announced, this was Reg Z2AD, closely followed by George ZGM second, and Len ZLN third. Two Stuart lectures were then given. The first was given by Ian ZALZ on his 2 mhz gear, and the second by George ZGM, who had brought along his 4/4 collapsible beam which he used on field days. Most enjoyable and friendly evening then concluded with a bite of supper and a cuppa to warm up the country visitors before they set off on their long journey home.

George ZCG, who is endeavouring to get himself established at his new QTH at East Newborough in the Gippsland area, is using a 300 watt 1000 Mc. A 1000 Mc. array is completed. He is at present busy building a steel locked converter to feed into his ARI. He is keenly interested in mobile work and has collinear stacked vertical antenna for working mobile on 288 Mc, as well as a quarter wave whip. The 1/4 wave transceiver is in mod. op. with 3.4w. input to a CV8. He hopes to make a trip to Melbourne soon to make tests from Mt. Dandenong and Mt. Donna Buang on 1 mhz.

Ian ZSAM, who is doing a two-year electronics course in England, hopes to be lucky enough to manage a short break away from hard studies to do a six-week tour of the continent by car with four friends. We hope he makes it, it certainly wouldn't be hard to take. A new call being heard on 8 mhz is that of XTC using a 1000 Mc. It is by no means a new call in Amateur Radio, he's one of the real old-timers. He is making plenty of contacts with XTC, but is looking forward to even better results when he gets his five at beam erected. Another new call on 8 mhz also is that of Ian ZEDG. There's two more stations for those trying to get their 100 contacts certificate.—Phyl Moncur.

## D.X.C.C. LISTING

Listed below are the highest twelve members in each section. The names and those whose totals have been amended will also be shown.

### PHONE

Car. Cnt.	No. rises	Call	Car. Cnt.	No. rises
21	186	VK3JD	1	130
26	177	VK4KS	4	132
3	178	VK6KW	4	130
12	178	VK3LN	11	141
2	179	VK4RW	23	141
10	183	VK3AWW	16	140
Amendments				
VK3BZ	31	186		

### Amendments

VK4DO 10 130

### New Members

VK3CE 34 161 VK3VQ 23 150

### C.W.

No. rises	Call	No. rises
8 223	VK3CX	26 185
29 218	VK3EO	2 183
15 215	VK3BY	45 181
8 306	VK4EL	9 175
48 301	VK3CN	1 183
10 200	VK3RU	18 181

### Amendments

VK4DO 20 145

### New Members

VK3OI 48 108

### OPEN

OPEN				
Car. Cnt.	No. rises	Call	Car. Cnt.	No. rises
4	231	VK3JE	13	185
6	225	VK2NS	18	185
33	234	VK3HG	9	181
7	221	VK4EL	10	175
61	300	VK6KW	13	171
		VK3CE		180

### Amendments

VK4DO 15 170

### New Members

VK3VQ 65 187 VK3JT 63 108













# A & R OUTPUT TRANSFORMERS

## ULTRA LINEAR OUTPUT TYPES

★ TYPE 921 (921-8: 2 or 8 ohms; 921-15: 2.7 or 15 ohms):

For VALVES:  
 807, KT66,  
 etc.  
 Suitable Conversion  
 "WILLIAMSON" to U.I.  
 See "Audio Engineering" of  
 June, 1952.

20 WATTS: 20-30,000 o.p.s.  
 Primary: 6,000 ohms.  
 SCREEN TAPS: 15% of Plate Z.  
 P.E.: Plus or minus 1 db 10-50,000  
 o.p.s.  
 Leakage Inductance:  
 10/15%: 10 mH. maximum.  
 Prim/Sec: 90 mH. maximum.

★ TYPE 931 (931-8: 2 or 8 ohms; 931-15: 2.7 or 15 ohms):

For VALVES:  
 6L6, 6X5,  
 KT66, etc.  
 See "Radio and Hobbies" of  
 February, 1950, 17 watts  
 U.I. Amplifier.

20 WATTS: 20-30,000 o.p.s.  
 Primary: 4,000 ohms.  
 SCREEN TAPS: 15% of Plate Z.  
 P.E.: Plus or minus 1 db 10-50,000  
 o.p.s.  
 Leakage Inductance:  
 10/15%: 10 mH. Maximum.  
 Prim/Sec: 10 mH. maximum.

## ★ Ultra Linear Output Type—

Type 915—12 watts  
 Prim.: 8,000 ohms p.p. (with  
 screen taps).  
 Sec.: 915-8: 2 or 8 ohms;  
 915-15: 2.7 or 15 ohms  
 Type 945—12 watts  
 Prim.: 8,000 ohms p.p.  
 Sec.: 2, 8, 12.5 15 ohms  
 Response: 10-50,000 o.p.s.  
 Valves: 6V6, 6BW6, KT61,  
 KT66, etc.  
 10% Screen Taps.

## ★ For Mullard "5-10" Amplifier

Type 2305—16 watts  
 Prim.: 5,000 ohms o.t.  
 Sec.: As below.  
 Response: 10-50,000 o.p.s.  
 Type 2305—8  
 For 2 or 8 ohms Secondary.  
 Type 2305—15  
 For 2.7 or 15 ohms Secondary.

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he produced (unwired in a new chassis and layout) for the edification of members. He pointed out that he would also be working with the 10w, s.a.b. that he was now getting with 100w. a.m. By using frequencies around the 450 Kc. mark, he thought it would be useful for intergang coupling. The vote of thanks to Rob was greeted with good volume of applause.

Following the smoke and distribution of QSL cards by George SRX and Joe SQJ, the minutes of the previous meeting were read and condensed. Some minor matters disturbing matter brought out, dusted and given an airing. This can now be laid respectfully away following the receipt of notification from the Department of Communications that the matter that Amateurs had better do some real thinking on is the change from 144 to 146 Mc. and hence, the 12 and 14 Mc. bands by VK3 where 50 Mc. was a Regional Agreement! You are also urged to complain bitterly about the pilfering of the 7 and 14 Mc. bands by commercial. Federal Executive needs all the information it can obtain to substantiate any claims which it will certainly make to the authorities. Send any loggings to me and I'll forward them on: date, time, and type of transmission are required. If you have any testing rig, try out, settle on a 10-20 Mc. frequency! Make quite sure that the interference is not second channel effect due to inadequate r.f. selectivity.

There being a discussion in technical circles on the misused term "splitter." This can be caused by a variety of troubles arising from coupling in the 10-20 Mc. tubes in the rx r.f. stages! If you are really confident that your tx is free from all the ailments that beset the average 10-20 Mc. station, then what about writing up your testing and checking equipment for "A.R." and describe why you are so sure! There is a monthly station report table as set up by the Amateur Advisory Committee and reports on signals can be initiated from anywhere in Australia. All such reports are forwarded to VK3 Amateurs from the Adelaide headquarters.

Now that V.I. licenses are available to Amateurs, I wonder if I should be writing to the I.R. Commission on the V.I. certificate OM. The b.b.s. will have to look out, Warwick, with these up and coming youngsters! Anyone got a spare camera tube for a V.I.?

#### NORTHERN AREA

Amongst visitors to the shack of SV1 this month, John was seen, who is coming to assist as best man to another from Blinman. John has been horse-riding round the sheep station and finds the peace of the outback preferable to the noise of city life. He is hoping to drop the Z's as soon as possible.

Thursday nights at 1900 hours a slow morse session was held by the club and the frequency has had to be shifted slightly higher than 3504 Kc. because of interference.

SWC with Bernie at the mike was pouring a good stream down the river. Also, a SEZ at Pirie had apparently cleared up the trouble of a few weeks ago and together with Compz BE and a few others, a relay find was made on a hazy day. Les went mobile and managed to put an 55 signal into Adelaide from a loaded whip and sw. input to the final. Ron SAP on the 10-20 Mc. band, and earlier in the afternoon had quite a net with Ron SEF adding to the gathering. Ron SRV, Hon. Sec. of the Women's Club and a few others were also present. J.E. JARO, SZAS scattered between them. Bernie is preparing a story for the club which will give you the low down on the club which was given over the last three years.

Correspondence to the Club can now be sent to F. W. Hopper, Esq., who has found it necessary to resign from office and the secretary is Keith SZAS, with Bernie SQW as Treasurer. Ron SAP and Les will be looking after with Ron make up the committee for 1950.

#### EYE'S PENINSULA

From Lincoln Wally SDF made an appearance recently using pr. 800s previously reported "one blue and the other red in the phase." Says that DX is good, but failing is better than no signal at all. He is a bit of a pessimist. No news regarding the others so gather that either DX or dices has got them fixed up. Several more are expected to be back from Borda, but maybe will wait them again over the holidays—whose did you say? Mine, of course. I'm always on holidays, like Doc and Brant. They're touring the "islands," so stand by VK7.

#### SOUTH EAST

Take a look at the 10-20 Mc. charts for Tasmania. Look and you'll soon find out who is the weather "Jonah." Doc or Joe. Apparently Charlie Son had a restless night when camped at Pt. MacDonnell due to, so he thought, "them

there also and so semi-trailers with open exhausts." It couldn't have been that bad Joe, for you would have woken yourself up with your own snoring.

Claude SCB brought along the new power supply and his new moderator and described to the chaps at the monthly meeting—a really classy job was the vote. Looks like you mean business, Claude, pair set-tilts, but still a bit about with little time to spare for the air—seems he might be hunting out of countries to work. John SYD has come back to the club after a long absence during his last effort and is showing the strain somewhat, hobbling around at work. Col SCJ has been back on the air, mainly, on up to 100 Col. But haven't made a QSO yet. Tom 3TW and Les SZAG still get together on the 2 mX weekly round-up with the boys. Brant JAH is rearing the DX field with an antenna fan, 10 vee-beams and 20 beams or is it 30 vee beams and 10 beams. Brant? Erg SKU managed new country and is still listening for more, however very much interested in the construction of a new sail-plane. Don't forget those technical articles, chaps. Keep them coming in, we are not up on our record yet—BXU.

#### PAPUA—NEW GUINEA

Our Secretary informs me that the subs are rolling in. This includes some who had previously left their membership lapse, so looks like the youngest Division is slowly and surely getting past the crawling stage. Judging from the keening of the young coucous, we should begin to make our presence felt in forthcoming competitions later in the year. We are advised that they are looking into the matter of us having the short end of the stick on the scoring, particularly in regard to the v.l.s. regions and the multipliers, where we are really out on a limb.

An appreciative note has been received, thanking our Division for a donation towards VKWV, which was made by the club. Our own rig for VKWV. Negotiations are well under way by our able Secretary on the application for a license. The club is doing well to make the dissemination of news more satisfactory on the weekly Sunday morning round-up. When this r.f. factory is exporting ergs to the grand old continent, the real step forward in our progress and no doubt be the means of bringing many more into the fold. Particular assistance in this regard is the number of associate members joining up; our latest additions being C. Fonseca, better known as Ton to the gang, and I am informed he has a xtal rig, and is working in the 10-20 Mc. ticket. It is quite a credit to his keenness, considering his isolation up at Loreman on Manus Island and Bulolo. He is also coming from you Pon OM. Another new member in the same category is Jack Gray, and we would like to be pleased to have you join us.

This Division also has another radio club, according to press reports in the local publication of news; this time in Rabaul and we look forward to getting the gen. on the set-up for with the Copra City section. Their new venture. Two affiliated clubs with our small membership is real progress in anyone's language.

Occasionally Bill, I had an interesting QSO with a local recently. He showed me a photo of the gang at the pre-war convention at the Bulolo power house, and enquired whether the members of the 500 and 1000 W. maus were still in the Territory. Boy, what a convention that was; could you ever forget it! I must have been there for the first time the entire week-end, but couldn't guarantee to go that distance at the next one. How do you think you'd shape up, Bill?

Hope Reg SZAL makes the grade for an unrestricted ticket at the next exams. Jim SAS joins in the look-ups at every chance. He said SAU only really enjoyed the commercial circuit. PQG is now the latest victim of the bites from the virus and has ticked off the States warrant and now has his head down for the balance of the HDB. He is a bit of a pessimist, but his nose in front for the first time with only one to go. Claude STG is now putting out a considerable amount of power. He is putting up fancy sky wires to exhale a little extra pr.; does a really commendable job with his 6v. powerhouse.

Also, a note from SRC, who bemoans the cold of VK3 land and has not been enjoying the heat of health since he left, but still managed to get his head down for the first time on behalf of VK9 Division and we are indeed fortunate in having such an able old-timer from the Territory who is still able to prove his prowess in the Islands. We all join in wishing you a speedy recovery Ron and look forward to the day when we can be in QSO with you with the new call sign.

One of the 11-year-old lads of the Wau Radio Club managed to snare a WE in his first QSO on c.w. and has been speedier ever since. Needless to say, the club QSL was despatched air mail the same day. The rest of the pupils raced back to their bursary to see what would be the next to qualify for the honour.

We have our general meeting coming up shortly now that 97N is back from the big smoke, so it is the big wet, Frank! and again the club is looking for a new member, or office-bearers for the ensuing year, including a vacancy for an editor of these notes, as I expect to be off to the frontiers in a few months. So keep in mind your nomination for the job when they are called for at the general meeting. Les will get going on the 10-20 Mc. really bumper year after such a good start.

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Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. The advertisement must be of the month, and remittance must accompany advertisement. Calculation of cost is based on an average of six words per line. Descriptive advertisements not accepted in this column.

**FOR SALE:** BC348L Rx with noise limiter, S meter and instruction book, £40; power supply extra. Two 7 Mc. xtals, £1 each. Power transformer, 400v. aside 150 Ma., 30 hy. 150 Ma. choke, best offer, W. R. Jardine, Box 145, Leongatha, Vic.

**FOR SALE:** Modified SCR322 Tx/Rx. Tx has tun. meter, art. relay, vernier drive on all condenser controls, 832A final. Pr. sup. 465v. at 300 Ma. with SR4GY and two 6X5s with VR150 for —150v. bias. Rx has 8AK5s front end, Eddystone vernier dials, S meter, noise limiter, a.v.c. and 6 in. speaker. All mounted on AR7 type rack with grey steel panels. Complete 2 mX rig for £50. Rx only, £27/10/-, One only 813 with socket, £2. Labgear 80 mX wide band coupler, 35/-, Command v.l.o., 5.3-7 Mc., 4-10 Ma. meter, 30/-, 0-100 Ma. meter, 30/-, One only E26, 10/-, One only Wharfedale 250 W. Hi-Fi Speaker, £25. L. A. Paul, 344 Rathmines Street, Fairfield, Melb. (JJ 1823).

**FOR SALE:** Xtals, many freqs., mostly FT243 holders, All £1 ea. Write for list. T. R. Naughton, Box 80, Birchip, Vic.

**S&W:** Small 25w. bandswitched Tx, 6AG7 v.l.o., 807 pa., covers 80, 40, 20, 15 mX. Built-in 400v., 150v. reg. b.v.c. and ant. relay. 10" x 8" x 15" high. Phone/c.w., grey finish, metered, no bugs, no haywire. 144 Mc. Transceiver, 5" x 5" x 4", sep. vib. supply, uses 6C4 and 6BJ5, sigs. hrd. over 100 miles, ideal port. Various quantities 6SK7, 6J7G, 1Q7, 7R7, pr. 6A3, pr. 6L6G, TZ40, 83, 8R4, 807, 8AK5, 9001, 8R7, 1D8. Type 3 Tx incomplete, modif. as per "S.W." mag. 55, plus spare pr. trans., vib.s., i.f. gang. National vernier vernier dial only 0-500, microamps meter, 2". J. Griffiths, 2 Higgins St., Wangaratta, Vic.

**SWAP or SELL:** Ferguson 3" c.r.o., 5' 3" A.W.A. transmitter rack, receiver and panels, A.W.A. 12v. 10w. mobile transmitter and receiver, large range of valves, transformers, mikes and cable, also other gear. Interested in movie or 35 mm. photographic, speedfishing, or tape recording equipment, or anything else. All enquiries answered. G. M. Pyke, 31 Fullerton St., Stockton, N.S.W.



# Homecrafts

PTK LTD.

AMATEURS'  
BARGAIN  
CENTRE ★

## Buy Your Test Equipment on Homecrafts' Easy Terms

### HEAVY DUTY RHEOSTATS

200 ohms

9/11 each

### 15-CORE CABLE

suitable for  
Talk-Back Systems, etc.

3/6 yard

### Q PLUS COIL FORMERS

5/16 or 9/16 inch dia. iron cored.

3/4 each plus tax.

### TWIN FEEDER CABLE

300 ohm type

10d. yard plus tax

### CO-AXIAL CABLE

72 ohm, 1/048 semi-air spaced

2/2 yard plus tax

### SPECIAL!

#### PEERLESS SPEAKERS

10 inch Twin Cone

6 watts, 50-15000 cycles per sec.

95/- each plus tax

### CABINETS OF DRAWERS

12 large type Drawers, 9 x 4 x 3  
inch ..... 79/6 plus tax

12 Medium type Drawers, 7½ x 3  
x 1½ inch ..... 52/8 plus tax

16 Small type Drawers, 5½ x 2½  
x 1½ inch ..... 36/8 plus tax

### POCKET SIZE MULTIMETERS

English make, 1800 ohms per volt

£9/19/6 each

### 0-20 VOLT D.C. METERS

2 inch square, 5 Ma. movement

10/- each plus tax

### Rack Mounting Type AMPLIFIER CHASSIS

Overall size: 19 x 10 x 7½ inch

10/- each

### TRANSMITTING TUBES

806 ..... 15/- each

326A ..... 15/- each

RX21 Mercury Vapour Rec-  
tifiers ..... 15/- each

### Full Track

#### TAPE ERASE HEADS

Brand new in boxes

39/6 each

### RESISTOR OR CONDENSER SUBSTITUTION BOXES

Metal box complete with en-  
graved panel, ready for building  
up into useful instrument.

Requires the addition only of  
switches and condensers or  
resistors.

10/- each

### Brand New

#### 7 INCH PER. MAG. SPEAKERS

Well known make, boxed.

27/6 each plus tax

### WIRE WOUND RESISTORS

Good assortment.

Approx. 24 in bag.

10/- bag

### LECTROFLASH CAPACITORS

650 uF. 250v.

42/9 each

## BARGAINS! BARGAINS!

### GANG CONDENSERS

Large variety, 2 or 3 gang.

8/11 each

### POWER TRANSFORMERS

various types

10/- each

### WIRE WOUND

#### POTENTIOMETERS

1000, 2500 and 10,000 ohms

3/11 each

### SWITCH POTENTIOMETERS

one megohm

4/11 each

### PUSH BACK HOOK-UP WIRE

10 yards for 2/-

### ENAMEL WIRE

27 s.w.g., 2 oz. coil, 2/- plus tax

22 s.w.g., 4 oz. coil, 3/9 plus tax

20 s.w.g., 4 oz. coil, 3/9 plus tax

NO MAIL ORDERS. PERSONAL SHOPPERS ONLY.

290 LONSDALE STREET, MELBOURNE

FB 3711



# TV

## for the Amateur

### Plugs & Sockets for TV Aerial Terminations by

# BELLING AND LEE

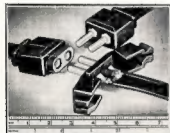
A complete range of twin feeder and co-axial transmission line plugs and sockets is provided for Amateur and TV services by Belling and Lee Ltd., as under:

#### Plugs and Sockets for Twin Feeder



**L781/P—Free plug for twin feeder.**  
**L781/S—Fixed socket.**

These inexpensive plugs and sockets were designed for use with unscreened balanced twin feeder as employed in television and short wave installations. Accepts 40 or 150 ohm feeders. L733/J—Free socket. This is similar to L733/P, but is fitted with socket inserts as in L767/J.

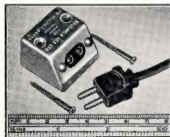


**L733/J—Free socket.**  
**L767/P—Free plug for twin ribbon feeder.**  
**L767/J—Free socket.**

Designed for use with 300 ohm unscreened twin ribbon feeder as used for short wave work and television. Conductors are pinched in the spalls on the solid pins and the "butterfly" type moulding folds over the feeder.

Special slots grip the cover over the cable conductors.

Interchangeable with L733/P and /S, and L739.



**L739—Outlet socket box for 40 or 150 ohm feeder.**  
**L701—For 300 ohm feeder.**

A skirting board termination for unscreened balanced twin aerial feeder. L733/S forms the outlet socket which will take L733/P or L767/P.

#### Co-axial Outlet Sockets



**L135—Outlet socket box.**

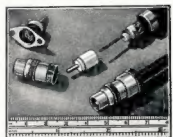
An improved surface mounting outlet box designed primarily for neat termination at the skirting board of television aerial installations. Will accommodate feeders up to 5/16 in. diam. The appropriate range of pins is listed under L1329, L734/P and L781.

This box is also suitable for certain laboratory and test bench installations.



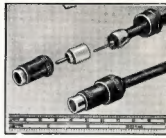
**L763—Double outlet box.**

This box has two standard outlet sockets and is complete with a "star" matching network which provides the coupling between the incoming cable and the outlets. When two receivers are connected, the input to each is 6 db. down on the input to the box. Designed for use in demonstration rooms, workshops and laboratories, etc., or where neighbours in semi-detached or terraced houses wish to share a television aerial installation. The appropriate range of plugs is listed under L1329, L734/P and L781.

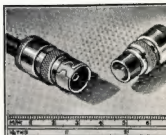


**L734/P and L1329—Standard free plugs.**  
**L734/S—Fixed socket.**

#### Co-axial Outlet Sockets



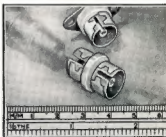
**L781/P—Free plug, insulated.**



**L734/J/AL—Free socket.**

Belling and Lee range of plugs L734/P, L781/P and L1329 conform to the draft R.E.C.M.F. Specification for television inlets. In addition to these requirements they are also designed to meet the various recommended methods of correct loading. In L734/P and L781/P the pin is retained in the insulant. L1329 has a hinged moulding to enable the pin to be withdrawn for soldering and/or crimping.

Complementary sockets for above range of plugs are L734/S, L704/S (fixed) and L734/J (free).



**L616—Adaptor.**  
**L604/S—Fixed socket.**

A particularly useful application is for the aerial input circuit to car radio installations. The co-axial cable designed expressly for this purpose loads perfectly into this lug. The sockets are suitably designed to hold the plug against vibration and are cadmium plated.

The fixed socket L604/S is the complementary mating member to our co-axial plugs. A flush mounting type, L734/S, is also available.

Australian Factory Representatives:

**R. H. CUNNINGHAM PTY. LTD., 118 Wattletree Road, Armadale, Vic.**